WHAT IS CLAIMED IS:

1. A data processing apparatus for embedding second digital data in first digital data, said data processing apparatus comprising:

bit-swap means for bit-swapping target data comprising a predetermined number of bits within said first digital data;

predicting means for outputting a prediction value which predicts a value corresponding to said target data from marginal data surrounding said target data;

sorting means for sorting target data subjected to said bit-swapping, according to the prediction margin of error value between a prediction value output by said predicting means and respective values corresponding to target data subjected to said bit-swapping;

correction code output means for outputting correction code according to target data subjected to said bit-swapping that has been sorted by said sorting means; and

embedded data output means for outputting, as embedded data, one of said target data subjected to said bit-swapping that has been sorted by said sorting means, according to said second digital data.

2. A data processing apparatus according to Claim 1,

wherein said predicting means output a prediction value predicting a value corresponding to said target data from a value wherein marginal data which is a first code surrounding said target data has been converted into n-notation data (wherein n > 2 and is a natural number);

and wherein said sorting means detect, as said prediction margin of error value, the absolute value difference value between the prediction value output by said predicting means and the value wherein target data as first code subjected to bit-swapping is converted into n-notation data, for each target data subjected to said bit-swapping, and sort said target data subjected to said bit-swapping according to said prediction margin of error.

3. A data processing apparatus according to Claim 2, wherein said predicting means output a prediction value predicting a value corresponding to said target data from a value wherein marginal data which is a binary code surrounding said target data has been converted into decimal data;

and wherein said sorting means detect, as said prediction margin of error value, the absolute value difference value between the prediction value output by said predicting means and the value wherein target data as binary code subjected to bit-swapping is converted into decimal

data, for each target data subjected to said bit-swapping, and sort said target data subjected to said bit-swapping according to said prediction margin of error.

4. A data processing apparatus according to Claim 2, further comprising:

code converting means for converting said first digital data into a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform, based on the value of said first digital data being converted as said first code;

wherein said predicting means output a prediction value predicting a value corresponding to said target data from a value wherein marginal data which is said new code surrounding said target data into decimal data;

and wherein said sorting means detect, as said prediction margin of error value, the absolute value difference value between the prediction value output by said predicting means and the value wherein target data as new code subjected to bit-swapping is converted into decimal data, for each target data subjected to said bit-swapping, and sort said target data subjected to said bit-swapping according to said prediction margin of error.

5. A data processing apparatus according to Claim 2, further comprising reading means for reading said second digital data which is equivalent to the number of bits which can be embedded in said target data;

wherein said embedded data output means outputs one of target data subjected to said bit-swapping that have been sorted by said sorting means, as embedded data, according to said second digital data read out by said reading means.

6. A data processing apparatus according to Claim 1, wherein said correction code output means output, as a correction code, the difference between said target data wherein said prediction margin of error value is subjected to minimal said bit-swapping, and said sorted order of said target data.

7. A data processing apparatus according to Claim 6, further comprising compressing coding means for performing compression coding of the correction code output by said correction code output means.

8. A data processing apparatus according to Claim 7, wherein said compressing coding means subjects said correction code to entropy coding.

9. A data processing apparatus according to Claim 1, wherein said first digital data is video/image data.

10. A data processing apparatus according to Claim 1, wherein said first digital data is audio data.

11. A data processing apparatus for embedding second digital data in first digital data, said data processing apparatus comprising:

first reading means for reading target data from said first digital data;

bit-swap means for bit-swapping said target data comprising a predetermined number of bits read out by said first reading means;

predicting means for outputting a prediction value which predicts a value corresponding to said target data from a value wherein marginal data which is binary code surrounding said target data is converted into decimal data;

sorting means for detecting, as said prediction margin of error value, the absolute value difference value between the prediction value output by said predicting means and the value wherein target data as binary code subjected to said bit-swapping is converted into decimal data, for each target data subjected to said bit-swapping, and sorting target data

subjected to said bit-swapping, in ascending order of said prediction margin of error value;

second reading means for reading out said second digital data which is equivalent to the number of bits which can be embedded in said target data read out by said first reading means;

correction code output means for outputting, as correction code, the difference in said sorted order between target data wherein said detected prediction margin of error value is subjected to minimal said bit-swapping, and said target data that has been read out; and

embedded data output means for outputting, as embedded data, said bit-swapped target data of the order corresponding to said second digital data read out by said second reading means.

12. A data processing apparatus for embedding second digital data in first digital data, said data processing apparatus comprising:

code converting means for converting said first digital data into a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform, based on the value of said first digital data being

converted as binary code;

first reading means for reading target data from said first digital data converted to said new code;

bit-swap means for bit-swapping said target data comprising a predetermined number of bits read out by said first reading means;

predicting means for outputting a prediction value for predicting the value of said target data from a value corresponding to marginal data which is new code surrounding said target data;

sorting means for detecting, as said prediction margin of error value, the absolute value difference value between the prediction value output by said predicting means and the value corresponding to target data as said bit-swapped new code, for each target data subjected to said bit-swapping, and sorting target data subjected to said bit-swapping, in ascending order of said prediction margin of error value;

second reading means for reading out second digital data corresponding to the number of bits that can be embedded in target data read out by said first reading means;

correction code output means for outputting, as correction code, the difference in said sorted order between target data wherein said detected prediction margin of error value is subjected to minimal said bit-swapping, and said

target data that has been read out; and

embedded data output means for outputting, as embedded data, said bit-swapped target data of the order corresponding to said second digital data read out by said second reading means.

13. A data processing apparatus for embedding second digital data in first digital data, said data processing apparatus comprising:

code converting means for converting said first digital data into a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform, based on the value of said first digital data being converted as said first code;

bit-swap means for bit-swapping said target data comprising a predetermined number of bits within said first digital data converted into said new code;

predicting means for outputting a prediction value for predicting the value of said target data from a value corresponding to marginal data which is new code surrounding said target data;

sorting means for sorting said target data subjected to said bit-swapping, according to the prediction margin of

error between the prediction value output by said predicting means and each value corresponding to target data as said new code subjected to said bit-swapping; and

embedded data output means for outputting, as embedded data, one of said bit-swapped target data sorted by said sorting means, according to said second digital data.

14. A data processing method for embedding second digital data in first digital data, said data processing method comprising the steps of:

a bit-swap step for bit-swapping target data comprising a predetermined number of bits within said first digital data;

a predicting step for outputting a prediction value which predicts a value corresponding to said target data from marginal data surrounding said target data;

a sorting step for sorting target data subjected to said bit-swapping according to the prediction margin of error value of said prediction value and respective values corresponding to target data subjected to said bit-swapping;

a correction code output step for outputting correction code according to target data subjected to said bit-swapping that has been sorted; and

an embedded data output step for outputting, as embedded data, one of said target data subjected to said

bit-swapping that has been sorted, according to said second digital data.

15. A data processing method for embedding second digital data in first digital data, said data processing method comprising the steps of:

a first reading step for reading target data from said first digital data;

a marginal data reading step for reading marginal data surrounding said target data;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits;

a predicting step for outputting a prediction value which predicts a value corresponding to said target data from a value wherein marginal data which is binary code is converted into decimal data;

a detecting step for detecting, as said prediction margin of error value, the absolute value difference value between the prediction value and the value wherein target data as binary code subjected to said bit-swapping is converted into decimal data, for each target data subjected to said bit-swapping;

a sorting step for sorting target data subjected to said bit-swapping, in ascending order of said prediction margin of error value;

a second reading step for reading out said second digital data which is equivalent to the number of bits which can be embedded in said target data;

a correction code output step for outputting, as correction code, the difference in said sorted order between target data wherein said detected prediction margin of error value is subjected to minimal said bit-swapping, and said target data that has been read out; and

an embedded data output step for outputting, as embedded data, said bit-swapped target data of the order corresponding to said second digital data that has been read out.

16. A data processing method for embedding second digital data in first digital data, said data processing method comprising the steps of:

a code converting step for converting said first digital data into a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform, based on the value of said first digital data being converted as binary code;

a first reading step for reading target data from said first digital data converted to said new code;

a marginal data reading step for reading marginal data surrounding said target data;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits;

a predicting step for outputting a prediction value for predicting the value of said target data from a value corresponding to marginal data which is new code surrounding said target data;

a detecting step for detecting, as said prediction margin of error value, the absolute value difference value between the prediction value and target data as said bit-swapped new code, for each target data subjected to said bit-swapping;

a sorting step for sorting target data subjected to said bit-swapping, in ascending order of said prediction margin of error value detected;

a second reading step for reading out second digital data corresponding to the number of bits that can be embedded in target data read;

a correction code output step for outputting, as correction code, the difference in said sorted order between target data wherein said detected prediction margin of error value is subjected to minimal said bit-swapping, and said target data that has been read out; and

an embedded data output step for outputting, as

embedded data, said bit-swapped target data of the order corresponding to said second digital data that has been read out.

17. A data processing method for embedding second digital data in first digital data, said data processing method comprising the steps of:

a code converting step for converting said first digital data into a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform, based on the value of said first digital data being converted as said first code;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits within said first digital data converted into said new code;

a prediction value output step for outputting a prediction value for predicting the value of said target data from a value corresponding to marginal data which is new code surrounding said target data;

a sorting step for sorting said target data subjected to said bit-swapping, according to the prediction margin of error value between the prediction value and each value corresponding to target data as said new code subjected to

said bit-swapping; and

an embedded data output step for outputting, as embedded data, one of said bit-swapped target data, according to said second digital data.

18. A storage medium storing a data processing program for embedding second digital data in first digital data, said program comprising the steps of:

a bit-swap step for bit-swapping target data comprising a predetermined number of bits within said first digital data;

a prediction value output step for outputting a prediction value which predicts a value corresponding to said target data from marginal data surrounding said target data;

a sorting step for sorting target data subjected to said bit-swapping, according to the prediction margin of error value of said prediction value, and values corresponding to target data subjected to said bit-swapping;

a correction code output step for outputting correction code according to target data subjected to said bit-swapping that has been sorted; and

an embedded data output step for outputting, as embedded data, one of said target data subjected to said bit-swapping that has been sorted, according to said second

digital data.

19. A storage medium storing a data processing program for embedding second digital data in first digital data, said program comprising the steps of:

a first reading step for reading target data from said first digital data;

a marginal data reading step for reading marginal data surrounding said target data;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits;

a predicting step for outputting a prediction value which predicts a value corresponding to said target data from a value wherein marginal data which is binary code surrounding said target data is converted into decimal data;

a detecting step for detecting, as said prediction margin of error value, the absolute value difference value between the prediction value and the value wherein target data as binary code subjected to said bit-swapping is converted into decimal data, for each target data subjected to said bit-swapping;

a sorting step for sorting target data subjected to said bit-swapping, in ascending order of said detected prediction margin of error value;

a second reading step for reading out said second

digital data which is equivalent to the number of bits which can be embedded in said target data that has been read out;

a correction code output step for outputting, as correction code, the difference in said sorted order between target data wherein said detected prediction margin of error value is subjected to minimal said bit-swapping, and said target data that has been read out; and

an embedded data output step for outputting, as embedded data, said bit-swapped target data of the order corresponding to said second digital data that has been read out.

20. A storage medium storing a data processing program for embedding second digital data in first digital data, said program comprising the steps of:

a code converting step for converting said first digital data into a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform, based on the value of said first digital data being converted as binary code;

a first reading step for reading target data from said first digital data converted to said new code;

a marginal data reading step for reading marginal data

surrounding said target data;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits;

a predicting step for outputting a prediction value for predicting the value of said target data from a value corresponding to marginal data which is new code;

a detecting step for detecting, as said prediction margin of error value, the absolute value difference value between the prediction value and target data as said bit-swapped new code, for each target data subjected to said bit-swapping;

a sorting step for sorting target data subjected to said bit-swapping, in ascending order of said detected prediction margin of error value;

a second reading step for reading out second digital data corresponding to the number of bits that can be embedded in target data that has been read out;

a correction code output step for outputting, as correction code, the difference in said sorted order between target data wherein said detected prediction margin of error value is subjected to minimal said bit-swapping, and said target data that has been read out; and

an embedded data output step for outputting, as embedded data, said bit-swapped target data of the order corresponding to said second digital data that has been read

out.

21. A storage medium storing a data processing program for embedding second digital data in first digital data, said program comprising the steps of:

a code converting step for converting said first digital data into a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform, based on the value of said first digital data being converted as said first code;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits within said first digital data converted into said new code;

a prediction value output step for outputting a prediction value for predicting the value of said target data from a value corresponding to marginal data which is new code surrounding said target data;

a sorting step for sorting said target data subjected to said bit-swapping according to the prediction margin of error value between a prediction value and respective values corresponding to target data as said new code subjected to said bit-swapping; and

an embedded data output step for outputting, as

embedded data, one of said bit-swapped target data sorted in said sorting step, according to said second digital data.

22. A decoding apparatus for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data and from a correction code, said decoding apparatus comprising:

bit-swap means for bit-swapping target data comprising a predetermined number of bits within said embedded data;

predicting means for outputting a prediction value which predicts a value of decoded data decoded from said target data, from a value corresponding to decoded data surrounding said target data which has already been decoded;

sorting means for sorting target data subjected to said bit-swapping according to the prediction margin of error value between a prediction value output by said predicting means and respective values corresponding to target data subjected to said bit-swapping by said bit-swap means;

decoded data output means for outputting, as decoded data, one code of said bit-swapped target data sorted by said sorting means, according to said correction code; and

second digital data output means for outputting second digital data according to the order of said target data, by bit-swapped target data sorted by said sorting means.

23. A decoding apparatus according to Claim 22, wherein said predicting means output a prediction value predicting the value of decoded data decoded from said target data, from a value wherein decoded data surrounding said target data that has already been decoded, which is a first code, has been converted into n-notation data (wherein $n > 2$ and is a natural number);

and wherein said sorting means detect, as said prediction margin of error value, the absolute value difference value between the prediction value output by said predicting means and the value wherein target data as first code subjected to bit-swapping is converted into n-notation data by said bit-swap means, for each target data subjected to said bit-swapping, and sort said target data subjected to said bit-swapping according to said prediction margin of error value.

24. A decoding apparatus according to Claim 23, wherein said predicting means output a prediction value predicting the value of decoded data decoded from said target data, from a value wherein decoded data surrounding said target data which has already been decoded which is a binary code has been converted into decimal data;

and wherein said sorting means detect, as said

prediction margin of error value, the absolute value difference value between the prediction value output by said predicting means and the value wherein target data as binary code subjected to bit-swapping is converted into binary data by said bit-swap means, for each target data subjected to said bit-swapping, and sort said target data subjected to said bit-swapping according to said prediction margin of error value.

25. A decoding apparatus according to Claim 23, wherein said predicting means output a prediction value predicting the value of decoded data decode from said target data, from a value corresponding to decoded data surrounding said target data which has already been decoded which is a new code wherein a value is appropriated to each code such that the intervals between decimal values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform;

and wherein said sorting means detect, as said prediction margin of error value, the absolute value difference value between the prediction value output by said predicting means and a value corresponding to target data as new code subjected to bit-swapping by said bit-swap means, for each target data subjected to said bit-swapping, and

sort said target data subjected to said bit-swapping according to said prediction margin of error value.

26. A decoding apparatus according to Claim 25, wherein said decoded data output means outputs, as decoded data, target data subjected to said bit-swapping in an order corresponding to said correction code, out of said bit-swapped target data sorted by said sorting means.

27. A decoding apparatus according to Claim 26, further comprising code converting means for outputting binary code equivalent to a decimal value corresponding to decoded data which is said new code output by said decoding data output means.

28. A decoding apparatus according to Claim 22, further comprising decoding means for decoding correction code subjected to compression coding, and outputting the correction code.

29. A decoding apparatus according to Claim 28, wherein said decoding means decodes correction code subjected to entropy coding, and outputs the correction code.

30. A decoding apparatus according to Claim 22,

wherein said first digital data is video/image data.

31. A decoding apparatus according to Claim 22, wherein said first digital data is audio data.

32. A decoding apparatus for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data and from a correction code, said decoding apparatus comprising:

reading means for reading target data from said embedded data;

bit-swap means for bit-swapping said target data comprising a predetermined number of bits;

predicting means for outputting a prediction value which predicts a value of decoded data decoded from said target data, from a value wherein decoded data which is binary code surrounding said target data that has already been decoded is converted into decimal data;

sorting means for detecting the absolute value difference value between the prediction value output by said predicting means and the value wherein target data as binary code subjected to said bit-swapping by said bit-swap means is converted into decimal data, for each target data subjected to said bit-swapping, and sorting target data

subjected to said bit-swapping, in ascending order of said prediction margin of error value;

decoded data output means for outputting, as decoded data, target data subjected to said bit-swapping in an order corresponding to said correction code, out of said bit-swapped target data sorted by said sorting means; and

second digital data output means for outputting second digital data according to the order of target data read out by said reading means, from bit-swapped target data sorted by said sorting means.

33. A decoding apparatus for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data and from a correction code, said decoding apparatus comprising:

reading means for reading target data from said embedded data;

bit-swap means for bit-swapping said target data comprising a predetermined number of bits;

predicting means for outputting a prediction value for predicting the value of decoded data decoded from said target data, from a value corresponding to decoded data surrounding said target data that has already been decoded which is a new code wherein a value is appropriated to each

code such that the intervals between decimal values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform;

sorting means for detecting, as said prediction margin of error value, the absolute value difference value between the prediction value output by said predicting means and the value corresponding to target data as said new code subjected to bit-swapping by said bit-swap means, for each target data subjected to said bit-swapping, and sorting target data subjected to said bit-swapping, in ascending order of said prediction margin of error value;

decoded data output means for outputting, as decoded data, target data subjected to said bit-swapping in an order corresponding to said correction code, out of said bit-swapped target data sorted by said sorting means;

second digital data output means for outputting second digital data according to the order of target data read out by said reading means, from bit-swapped target data sorted by said sorting means; and

code converting means for outputting binary code equivalent to a decimal value corresponding to decoded data which is said new code output by said decoded data output means.

34. A decoding apparatus for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data, said decoding apparatus comprising:

bit-swap means for bit-swapping said target data comprising a predetermined number of bits from said embedded data;

predicting means for outputting a prediction value for predicting the value of decoded data decoded from said target data, from a value corresponding to decoded data surrounding already-decoded said target data which is a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform;

sorting means for sorting said target data subjected to said bit-swapping according to the prediction margin of error value between a prediction value output by said predicting means and respective values corresponding to target data as said new code subjected to said bit-swapping by said bit-swap means;

second digital data output means for outputting second digital data according to the order of target data, from bit-swapped target data sorted by said sorting means; and

code converting means for outputting original code

equivalent to a decimal value corresponding to decoded data which is said new code output by said decoded data output means.

35. A decoding method for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data and from a correction code, said decoding method comprising the steps of:

a bit-swap step for bit-swapping target data comprising a predetermined number of bits within said embedded data;

a prediction value output step for outputting a prediction value which predicts a value of decoded data decoded from said target data, from a value corresponding to decoded data surrounding said target data which has already been decoded;

a sorting step for sorting target data subjected to said bit-swapping according to the prediction margin of error value between a prediction value and respective values corresponding to target data subjected to said bit-swapping;

a decoded data output step for outputting, as decoded data, one code of said bit-swapped target data that has been sorted, according to said correction code; and

a second digital data output step for outputting second digital data according to the order of said target data, by

bit-swapped target data that has been sorted.

36. A decoding method for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data and from a correction code, said decoding method comprising the steps of:

a reading step for reading target data from said embedded data;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits;

a prediction value output step for outputting a prediction value which predicts a value of decoded data decoded from said target data, from a value wherein decoded data which is binary code surrounding said target data that has already been decoded is converted into decimal data;

a detecting step for detecting, as a prediction margin of error value, the absolute value difference value between the prediction value and the value wherein target data as binary code subjected to said bit-swapping is converted into decimal data, for each target data subjected to said bit-swapping;

a sorting step for sorting target data subjected to said bit-swapping, in ascending order of said detected prediction margin of error value;

a decoded data output step for outputting, as decoded data, target data subjected to said bit-swapping in an order corresponding to said correction code, out of said bit-swapped target data that has been sorted; and

a second digital data output step for outputting second digital data according to the order of target data that has been read out, from bit-swapped target data that has been sorted.

37. A decoding method for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data and from a correction code, said decoding method comprising the steps of:

a reading step for reading out target data from said embedded data;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits;

a prediction value output step for outputting a prediction value for predicting the value of decoded data decoded from said target data, from a value corresponding to decoded data surrounding said target data that has already been decoded which is a new code wherein a value is appropriated to each code such that the intervals between decimal values corresponding to code generated by bit

strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform;

a detecting step for detecting, as said prediction margin of error value, the absolute value difference value between the prediction value and the value corresponding to target data as said new code subjected to bit-swapping, for each target data subjected to said bit-swapping;

a sorting step for sorting target data subjected to said bit-swapping, in ascending order of said detected prediction margin of error value;

a decoded data output step for outputting, as decoded data, target data subjected to said bit-swapping in an order corresponding to said correction code, out of said bit-swapped target data that has been sorted;

a second digital data output step for outputting second digital data according to the order of target data that has been read out, from bit-swapped target data that has been sorted; and

a code converting step for outputting binary code equivalent to a decimal value corresponding to decoded data which is said new code.

38. A decoding method for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data,

said decoding method comprising the steps of

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits from said embedded data;

a prediction value output step for outputting a prediction value for predicting the value of decoded data decoded from said target data, from a value corresponding to decoded data surrounding already-decoded said target data which is a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform;

a sorting step for sorting said target data subjected to said bit-swapping according to the prediction margin of error value between the prediction value and respective values corresponding to target data as said new code subjected to said bit-swapping;

a second digital data output step for outputting second digital data according to the order of target data, from bit-swapped target data that has been sorted; and

a code converting step for outputting original code corresponding to decoded data which is said new code.

39. A storage medium storing a decoding program for

decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data and from a correction code, said program comprising the steps of:

a bit-swap step for bit-swapping target data comprising a predetermined number of bits within said embedded data;

a prediction value output step for outputting a prediction value which predicts a value of decoded data decoded from said target data, from a value corresponding to decoded data surrounding said target data which has already been decoded;

a sorting step for sorting target data subjected to said bit-swapping according to the prediction margin of error value between a prediction value output by said predicting step and respective values corresponding to target data subjected to said bit-swapping by said bit-swap step;

a decoded data output step for outputting, as decoded data, one code of said bit-swapped target data that has been sorted, according to said correction code; and

a second digital data output step for outputting second digital data according to the order of said target data, by bit-swapped target data that has been sorted.

40. A storage medium storing a decoding program for

decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data and from a correction code, said program comprising the steps of:

a reading step for reading out target data from said embedded data;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits;

a prediction value output step for outputting a prediction value which predicts a value of decoded data decoded from said target data, from a value wherein decoded data which is binary code surrounding said target data that has already been decoded is converted into decimal data;

a detecting step for detecting, as a prediction margin of error value, the absolute value difference value between the prediction value and the value wherein target data as binary code subjected to said bit-swapping is converted into decimal data, for each target data subjected to said bit-swapping;

a sorting step for sorting target data subjected to said bit-swapping, in ascending order of said detected prediction margin of error value;

a decoded data output step for outputting, as decoded data, target data subjected to said bit-swapping in an order corresponding to said correction code, out of said bit-

swapped target data that has been sorted; and

a second digital data output step for outputting second digital data according to the order of target data that has been read out, from bit-swapped target data that has been sorted.

41. A storage medium storing a decoding program for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data and from a correction code, said program comprising the steps of:

a reading step for reading out target data from said embedded data;

a bit-swap step for bit-swapping said target data comprising a predetermined number of bits;

a prediction value output step for outputting a prediction value for predicting the value of decoded data decoded from said target data, from a value corresponding to decoded data surrounding said target data that has already been decoded which is a new code wherein a value is appropriated to each code such that the intervals between decimal values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform;

a detecting step for detecting, as said prediction

margin of error value, the absolute value difference value between the prediction value and the value corresponding to target data as said new code subjected to bit-swapping, for each target data subjected to said bit-swapping;

a sorting step for sorting target data subjected to said bit-swapping, in ascending order of said detected prediction margin of error value;

a decoded data output step for outputting, as decoded data, target data subjected to said bit-swapping in an order corresponding to said correction code, out of said bit-swapped target data that has been sorted;

a second digital data output step for outputting second digital data according to the order of target data that has been read out, from bit-swapped target data that has been sorted; and

a code converting step for outputting binary code equivalent to a decimal value corresponding to decoded data which is said new code.

42. A storage medium storing a decoding program for decoding first digital data and second digital data from embedded data wherein said second digital data is embedded in said first digital data, said program comprising the steps of:

a bit-swap step for bit-swapping said target data

comprising a predetermined number of bits from said embedded data;

a prediction value output step for outputting a prediction value for predicting the value of decoded data decoded from said target data, from a value corresponding to decoded data surrounding already-decoded said target data which is a new code wherein a value is appropriated to each code such that the intervals between values corresponding to code generated by bit strings, with the same number of 0s and 1s, being subjected to swapping, are essentially uniform;

a sorting step for sorting said target data subjected to said bit-swapping, according to the prediction margin of error value between the prediction value and the value corresponding to target data as said new code subjected to said bit-swapping;

a second digital data output step for outputting second digital data according to the order of target data, from bit-swapped target data that has been sorted; and

a code converting step for outputting original code corresponding to decoded data which is said new code.